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Evocative and Function-Altering Effects of Contingency-Specifiying Stimuli

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This study examined the effects of various forms of contingency-specifying stimuli (CSSs) on the compliance of 4-year-old children, and attempted to separate the evocative vs. function-altering functions of the CSSs. Each child was presented with a series of CSSs (one per day) that differed with respect to the deadline specified (immediate or delayed) and the consequence specified for performing the task. In the second part of the experiment, the CSSs either specified a delayed deadline or did not specify a deadline. Also, the consequences that were specified were either immediate or delayed. The results showed that under conditions where the opportunity to respond was immediately available, (a) CSSs that specified deadlines and immediate consequences exerted reliable control over behavior, and (b) deadlines, whether delayed or immediate exerted some control over the behavior, even when CSSs specified no consequences for task completion. Under conditions where the opportunity to respond was delayed, (a) CSSs of any kind were less likely to exert reliable control, and (b) children were most likely to respond when CSSs specified immediate consequences and made no mention of a deadline. Results are interpreted in terms of the role of CSSs as evocative and/or function-altering and in terms of deadlines as learned aversive conditions.

Environmental events have been categorized as being either evocative or function-altering in their effects (Blakely & Schlinger, 1987; Michael, 1983; Schlinger & Blakely, 1987). Evocative effects are momentary changes in behavior, whereas function-altering effects are enduring changes in the strength of behavioral relations. Discriminative stimuli are evocative events in that they account only for momentary changes in behavior. Behavioral consequences are function-altering events in that they account for changes in behavioral relations in a repertoire; their effects can be observed in behavior occurring over some period of time after the contingent consequence occurs.

The function of rules is often considered to be discriminative (e.g., Catania, 1984; Catania, 1989; Galizio, 1979; Hayes, 1986; Shimoff, Catania, & Matthews, 1981; Skinner, 1969; Vaughan, 1985; Zuriff, 1985). Stimuli acquire discriminative functions with respect to some behavior "because in the presence of that stimulus the *relation* between that type of behavior and an effective behavioral consequence has been different from what it was in the absence of that stimulus" (Michael, 1992, p. 1). In some "rule following," however, behavioral relations seem to appear in a repertoire following presentation of a CSS and before there is any reinforcement for following the rule. There are two general ways of dealing with this apparent fact.

Skinner (1969) stated that rules are verbal stimuli that specify contingencies—contingency specifying-stimuli (CSS). Following Skinner, Cerutti (1989) conceptualized rules as discriminative stimuli and sought to explain various ways in which control by verbal discriminative stimuli was transferred to new rules as a result of generalization (construed in a broad sense) of previously reinforced relations. Also based on Skinner's analysis, Blakely and

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Schlinger defined rules formally as contingency-specifying stimuli (Blakely & Schlinger, 1987; Schlinger & Blakely, 1987; Schlinger, 1990), and suggested their function was not evocative, but function-altering. Although CSSs control behavior as antecedent stimuli, their most unique feature is that they may change the evocative function of behaviorally neutral stimuli either by bringing a response under the discriminative (evocative) control of a previously neutral stimulus, or by strengthening or weakening an existing discriminative relation (Schlinger & Blakely, 1987). Schlinger and Blakely (1987) state that when a CSS and the S^D described by the CSS occur at the same time, the evocative effects of the S^D can be mistakenly assigned to the CSS. By separating the effects of the CSSs and other antecedent stimuli, the function-altering effects of the CSSs may be distinguished from the commonly accepted discriminative effects. Although we suspect much of Cerutti's account and that of Schlinger and Blakely can be reconciled, we are interested here in pursuing the possibility of separating the evocative and function-altering effects of CSSs.

The current study is a replication and extension of the study conducted by Braam and Malott (1990). These authors found that rules that specified *deadlines* resulted in better control over the behavior of preschool children than did rules that did not specify deadlines. In particular, rules which specified only response requirements and rules specifying no deadline with a one-week delayed reinforcer did not reliably control behavior. However, rules specifying an immediate deadline with an immediate *or* delayed reinforcer exerted reliable control over the children's behavior. Whether rules specified immediate or delayed reinforcement appeared to have little effect on their subjects' behavior. Braam and Malott (1990) hypothesized noncompliance with a rule as a previously learned aversive condition which was established by the CSS, with compliance being reinforced by escape from the aversive condition. They proposed that rule compliance is directly reinforced in that the learned aversive condition, which is established by the deadline in the rule, is immediately terminated.

Consequences were available in the deadline condition in Braam and Malott's (1990) study, if and only if the child responded immediately after rule presentation (the deadline was *now*). Not all deadlines are immediate, however, and the immediacy of their deadline ensured temporal proximity between the presentation of a CSS and the stimulus events that were designed to control the behavior of following the rule. Just how the CSS including deadline statements functioned is unclear. The CSS may have served either an evocative role or a function-altering role, or both. Specifying immediate deadlines rules out any possibility of distinguishing between function-altering functions of CSSs.

The current study further examined the effects of specifying deadlines and consequences on rule-following behavior. We also attempted to separate the function-altering and evocative functions of CSSs, particularly those in which deadlines are specified.

METHOD

Subjects and Setting

Nine English-speaking children, between 4.0 and 5.0 years of age, were selected to participate based on their meeting the following screening criterion. All children whose parents signed informed consent forms were asked by the experimenter to pick up toys; requests did not specify a deadline for the task to be completed, and made no mention of a consequence for compliance. Children were disqualified from participation if they completed 50% or more of the requested tasks when neither a deadline nor a consequence was specified in the request. The study was conducted in the children's classroom/activity room at the Child Development Laboratory at the University of North Texas. Children participated each weekday at the beginning of each day, a

time during which children played freely with toys, puzzles, paint, etc.

Apparatus

The experimenter controlled access to a "Goodie Box" which contained a variety of items (e.g., stickers, stampers, and various other toys) to be used in the study as behavioral consequences. A variety of lab school toys, approximately equal in size and volume, were experimental manipulanda. In conditions in which the opportunity to respond was delayed the experimenter used toys that were very different from others available in the classroom so that they could be easily discriminated. Toys were placed on the floor in the classroom where they were clearly visible.

Design

As in Braam and Malott (1990) a variation of a within-subjects, multi-element design as explicated by Sidman (1960) was used. The content of the CSSs and the different opportunities to respond constituted the various elements. CSSs differed with respect to specification of deadlines and specification of reinforcement conditions (see Table 1). The deadlines specified were of three kinds: no deadline (ND), immediate deadline (ID), and delayed deadline (DD). Specification of consequences varied in several ways: non-available (NC), immediately available upon task completion (IC), and available after a specified delay (DC). Throughout the study, consequences were always delivered, or not delivered, as specified by the CSSs. The opportunity-to-respond conditions were of two kinds: opportunity immediately available (*) and opportunity delayed by 20 minutes (**).

In all sessions, children were individually approached and presented with a CSS that specified that the children pick up toys the experimenter had placed on the floor. The study contained two parts. All nine subjects participated in Part I of the study during which the opportunity to respond was always available (*) at presentation of the CSS. In Part I the CSS elements were immediate vs. no deadline and immediate vs. no consequences. All subjects were exposed to each combination of elements, but in various orders. Subjects were assigned first either to a sequence of "immediate deadline" CSSs, or a sequence of "delayed deadline" CSSs. Each CSS also included a statement regarding consequences. Immediate-consequence (IC) and no-consequence (NC) sessions were randomly selected on a daily basis, with the provision that the last components presented would result in equalizing the number of (IC) and (NC) components.

If a subject's performance was stable and consistent within IC and NC components

Table 1

Experimental conditions.

Condition	Deadline	Consequence	Opportunity to Respond
ID-IC*	immediate	immediate	immediate
ID-NC*	immediate	none	immediate
DD-IC*	delayed	immediate	immediate
DD-NC*	delayed	none	immediate
DD-IC**	delayed	immediate	delayed
DD-DC**	delayed	delayed	delayed
ND-IC**	none	immediate	delayed
ND-DC**	none	delayed	delayed

Note: The condition abbreviations are used in the tables and in the figure. ND=No deadline; ID=Immediate deadline; DD=Delayed deadline NC=No consequence; IC=Immediate consequence; DC=delayed consequence; *=Immediate opportunity to respond; **=delayed opportunity to respond.

across the first 8 sessions, the experimenter proceeded to the next phase of the experiment. If performance was not stable, the experimenter continued until stability or until at least 8 IC and 8 NC sessions had occurred under that particular deadline condition. The second phase of Part I was like the first, except those children who had been presented "immediate deadline" CSSs were now presented with "delayed deadline" CSSs, and vice versa. Part I of the study was complete after all nine subjects had participated in both deadline conditions (each with intermixed sessions of immediate consequence CSSs and no-consequence CSSs).

Five children who responded consistently and differentially to different elements in Part I of the study also participated in Part II (conditions DD-IC**, DD-DC**, ND-IC**, and ND-DC**). All sessions in Part II involved the delayed opportunity to respond. Because of an approaching month-long break, each child was exposed to only two sessions of each combination of CSS elements during Part II. The order in which the two types of instructions were presented was randomly selected.

Procedure

Observation method. The first author and a graduate student from the Center for Behavior Analysis collected all data. The second observer, who was not blind with respect to the experimental conditions, observed from an observation deck that was above and to one side of the activity room. Agreement between observers was checked at the end of each experimental session. The experimenter and second observer recorded the time the CSS was delivered, the time the child initiated the task, the time the task was completed, and the time that the deadline occurred. In Part II (delayed opportunity sessions), the time that the toys were set out was also recorded.

The experimenter used the following scoring criteria for all conditions: (a) a "completion" was marked for each session in which the task was completed, (b) a "marked" was recorded when a child left a task before completion but returned and completed it, (c) a "working" was marked if a child spent any time during a session working on the task but did not complete it, and (d) a "noncompletion" was marked for a task which was not completed. If one of the toys was left on the floor a "working" or "noncompletion" was scored.

The experimenter and second observer also made note of verbal responses made by the child following the delivery of the statement. The activity that the child was engaged in at the time the experimenter gave the statement as well as the toys that were to be picked-up were also recorded by the experimenter and the observer. For all conditions the toys were removed by the experimenter before leaving, thus removing the opportunity for unreinforced behavior to occur.

Screening condition. This condition was used to eliminate from the study those children whose pre-intervention performance suggested their compliance would not be sensitive to the variables manipulated in the experiment. During this condition the experimenter specified the response requirements (task of picking up toys), but did not specify a consequence or a deadline. For example, "Vicki, would you pick up these toys?" The experimenter did not provide feedback or consequences during this condition. If the child did not pick up the toys within five minutes, a noncompletion was marked. Only one request was given per daily session. Each child received four such requests. Seven children who failed to pick up any toys under these conditions (0%), and two children who each picked up the toys once (25%) under these conditions, participated in the experiment.

Conditions ID-IC, ID-NC*, DD-IC*, and DD-NC**. When participating under these conditions, each child was approached individually by the experimenter, who said "(Child's name), here are some toys to pick up (indicate toys). I don't care if you pick them up or not. If you pick up the toys (indicate toys) *now* (in ID conditions; or *before outside playtime* in DD conditions),

you can (in IC conditions or *cannot* in NC conditions) go to the Goodie Box when you're finished."

In all conditions each child was given only one trial per daily session. Because there was a high probability that the children had a history of social approval for following requests, and a history of social disapproval for not following such requests, the phrase, "I don't care if you pick up the toys or not," was always included as an attempt to reduce social pressure for responding to requests.

During Part I, five children were first run under ID-IC* and ID-NC* conditions and then under DD-IC* and DD-NC* conditions; the other four children were run first under DD-IC* and DD-NC* conditions and then under Conditions ID-IC* and ID-NC*. In ID-IC* and ID-NC* conditions, *immediate* deadlines were always a component of the CSS and the particular consequence component (IC or NC) was randomly selected with some constraints as described below. That is, the CSS always specified that the task was to be completed *now*; the consequence specified in the request varied (immediate or none) from session to session during this phase. If the task was not initiated within 5 minutes, the experimenter marked the task as noncompleted. If the task was completed, a trip to the Goodie Box ensued in sessions in which CSS included specification of such consequences.

Conditions DD-IC* and DD-NC* followed the same procedures as conditions ID-IC* and ID-NC* with the only difference being the specified deadline. For these children, *delayed* deadlines were always a component of the CSS and the particular consequence component (IC or NC) was randomly selected with the following constraints. In these conditions the deadline statement specified that the task was to be completed *before outside playtime*, and the consequence varied (immediate or none) from session to session. The deadline occurred approximately 20 minutes following the statement. If the child completed the task during sessions in which a reinforcer had been specified, the trip to the Goodie Box occurred immediately following task completion.

Performance feedback was given for all conditions. The wording of the feedback differed slightly from session to session, depending on the condition in effect. When tasks were completed the following feedback was delivered: "(Child's name), you picked-up the toys right away (or *before outside playtime*); now you can go to the Goodie Box." If the child did not start picking up the toys within five minutes for ID-IC* and ID-NC* conditions or before playtime (about 20 minutes) for DD-IC* and DD-NC* conditions, the experimenter provided the following performance feedback: "(Child's name), you did not pick-up the toys right away (or *before outside playtime*) now you cannot go to the Goodie Box." No trip to the Goodie Box occurred that day.

*Conditions DD-IC**, *DD-DC**, *ND-IC**, *and ND-DC***. In Part II of the study, the CSS was precluded from having an evocative function by delaying the opportunity to perform the task. While precluding the evocative function of requests, the deadline statement was manipulated to ascertain its effects when immediate and delayed consequences were specified.

In these conditions the opportunity to pick up the toys was delayed approximately 20 minutes after the request was presented. The request specified either a deadline or no deadline and either an immediate trip to the Goodie Box or a trip delayed by one day. Toys were placed on the floor in the classroom approximately 20 minutes after the experimenter presented the statement to the subject. Conditions lasted two sessions for each child. The order of presentation for conditions DD-IC**, DD-DC**, ND-NC**, and ND-DC** was randomly selected for each child. The toys used in Part II were highly discriminable and were unlike those previously in the classroom.

The following instructions were used. "(Child's name), I'm going to put out some toys (indicate toys) for you to pick up later. I do not care if you pick them up or not. If you pick up the toys (ND) [or if you pick up the toys *before outside playtime* (DD)],

you can go to the Goodie Box when you're finished (IC) [or you can go to the Goodie Box tomorrow (DC)]."

Feedback occurred as follows in conditions where immediate consequences were specified. "(Child's name), I said that I was going to put out some toys for you to pick up later. You picked up (or did not pick up) the toys (*before outside playtime* (DD), now you can (or cannot) go to the Goodie Box." In conditions where delayed consequences were specified, performance feedback occurred one day following the completion of the task: "(Child's name), yesterday I said I was going to put out some toys for you to pick up later. You picked up (or did not pick up) the toys (*before outside playtime* in DD conditions). So, today you can (or cannot) go to the Goodie Box."

RESULTS

Interrater Reliability

A total of 260 agreement trials were conducted during experimental conditions. The percent of agreement for task completion, calculated on an occurrence-by-occurrence basis, was 98.9% over all sessions. Of 143 trials on which children initiated the task, the second observer was present and recording data on 141 trials. On six occasions, the observer reported various interferences with latency recordings, such as children blocking her view of the child and continuation of the stopwatch after she attempted to press the stop button. Of the remaining 135 trials, 127 latencies were within 1 second of one another and the remaining 8 latencies within 2 seconds of one another.

Conditions ID-IC, ID-NC**

For the sessions in which an *immediate* deadline was always specified, and the opportunity to respond was available when the CSS was presented, specification of consequence vs. no consequence (correlated with delivery) was shown to have a large effect on the children's behavior. As can be seen in Figure 1, when the CSS specified both an immediate deadline and an immediate consequence, the children averaged 91.9% task completion.

During comparison trials in which the CSS specified an immediate deadline and

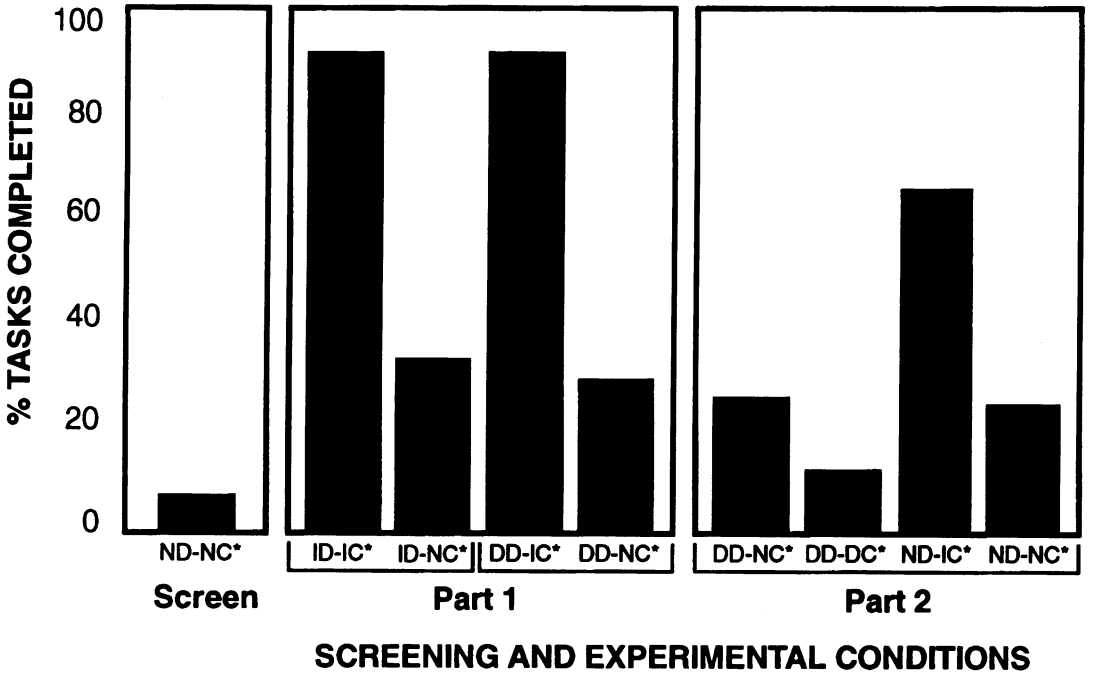

Fig. 1. Group mean performance for all conditions. ND=no deadline; ID=immediate deadline; DD=delayed deadline; NC=no consequence; IC=immediate consequence; DC=delayed consequence; *=immediate opportunity to respond; **=delayed opportunity to respond).

no consequence, average task completion of the same children was 28.3%. Of 62 one-trial sessions in which the CSS included specification of a consequence, 59 statements were followed by the specified performance. Of 62 one-trial sessions which specified that no consequence was available, 17 resulted in the specified performance. Grouped data reflect individual performances (see Table 2), with one clear exception and one ambiguous case. S10 picked up toys 6/8 times when the CSS specified no reinforcer; S5 picked up toys 4/8 times when the CSS specified no reinforcer.

Conditions DD-IC and DD-NC**

Similarly, for a series of sessions in which a *delayed* deadline was always specified, and the opportunity to respond was available when CSS was presented, specification of consequence vs. no consequence (correlated with delivery) was shown to have a large effect on the children's behavior. As can be seen in Figure 1, the children, as a group, completed 91.7% of the tasks when a consequence was specified as immediately available and only 26% of the tasks when the CSS specified that no consequence was available. In the 48 one-trial sessions in which the CSS specifying a delayed deadline also specified a consequence, 44 statements were followed by the specified performance. Of the 48 one-trial sessions which specified that no consequence was available, 12 resulted in the specified performance.

Grouped data reflected individual performances with two exceptions (see Table 2). S10 showed little differential responding with respect to the inclusion of the reinforcer component in the CSS; he always picked up the blocks in the delayed deadline conditions as he consistently did in the immediate deadline conditions. S6 also showed little differential responding in that he picked up the blocks 5/8 times when immediate-consequences were specified in the CSS and 4/8 times when the CSS specified that no consequences were available.

Immediate Deadlines vs. Delayed Deadlines

Immediacy vs. delay of deadlines stated in CSSs did not differentially affect the children's performance. In conditions in which the CSS specified immediate consequences, the performance was 95% if the deadline specified was *immediate* and 92% if the deadline specified was *delayed*.

Table 2

Individual task completions when opportunity to respond immediately available.

		Experimental Condition			
Subject	Screening	ID-IC*	ID-NC*	DD-IC*	DD-NC*
S2	0% (0/4)	100% (6/6)	0% (0/6)	100% (4/4)	0% (0/4)
S3	0% (0/4)	100% (6/6)	0% (0/6)	100% (4/4)	0% (0/4)
S4	0% (0/4)	100% (8/8)	25% (2/8)	100% (4/4)	0% (0/4)
S5	0% (0/4)	100% (8/8)	50% (4/8)	100% (8/8)	25% (2/8)
S6	0% (0/4)	87.5% (7/8)	25% (2/8)	62.5% (5/8)	50% (4/8)
S7	0% (0/4)	87.5% (7/8)	37.5% (3/8)	87.5% (7/8)	25% (2/8)
S8	25% (1/4)	83.3% (5/6)	0% (0/6)	100% (4/4)	0% (0/4)
S9	25% (1/4)	100% (4/4)	0% (0/4)	100% (4/4)	0% (0/4)
S10	0% (0/4)	100% (8/8)	75% (6/8)	100% (4/4)	100% (4/4)

Note. The data in parentheses are (tasks completed/total tasks). * = the opportunity to respond was available when the statement was presented. ID = immediate deadline; DD = delayed deadline; IC = immediate consequences; NC = no consequences.

Table 3

Response latencies in immediate and delayed deadline conditions with immediate opportunity to respond.

	Immediate Deadline	Delayed Deadline
No. Observations	76	56
Range	1-95 seconds*	1-39 seconds
Mean	10.2 seconds	11.3 seconds
SD	11.8 seconds	8.4 seconds
Median	7 seconds	9 seconds

* 75 of 76 observations fell within a range of 1-29 seconds, with one outlier at 95 seconds. If the outlier is excluded, the mean latency in the immediate deadline condition = 9.1 seconds, the SD = 6.7, and the median is 7.

Similarly, in conditions in which the CSS specified delayed consequences, the performance was the same whether deadlines were specified as immediate (27%) or delayed (25%).

Summary data on latency of responding are shown in Table 3. Average latency in the two conditions in which CSSs specified immediate availability of consequences was compared. Average latency of all responses was 10.2-s when the CSS specified immediate deadline and 11.3-s when the CSS specified a delayed deadline. Despite the fact that the children were not required to respond immediately, but rather had a 20-minute window within which to respond, the children's response latencies were almost exactly the same in the two deadline conditions where reinforcers were also immediately available.

*Conditions DD-IC**, DD-DC**, NC-IC**, and NC-DC***

In the second part of the study, the experimenter held constant a delayed opportunity to *respond* and varied, on a session by session basis, both the deadline component (either immediate or delayed) and the consequence component (either immediate or delayed). Only those children whose performance was considered sufficiently consistent and differentiated during the first part of the study participated in the second part (S2, S3, S4, S8, S9).

When the opportunity to respond was delayed, the children showed little overall likelihood (27.5%) of initiating the task specified in the CSS—deadline or no deadline, immediate consequence or no consequence. The single condition in which children initiated the task more often than not (60%) was the condition in which CSSs specified no deadline and also specified immediate availability of a consequence upon task completion (Figure 1). Of a total of 11 tasks initiated by all children in delayed opportunity conditions, eight occurred in conditions where the CSSs did not specify a deadline and three occurred in conditions where the CSSs specified delayed deadlines. Individual performances are shown in Table 4.

Performances of individual children varied considerably, ranging from that of S8, who never picked up the toys when the opportunity to respond was delayed (thereby showing no responsivity to CSSs under these conditions) to that of S9, who responded 4/8 times in accordance with various CSSs, showing some systematic differences in control by the various elements (see Table 4).

DISCUSSION

The results of the current study support and extend those obtained by Braam and Malott (1990). Namely, that CSSs that specified responses, deadlines, and immediate consequences reliably controlled behavior when the opportunity to respond was

Table 4

Individual task completion with delayed opportunity to respond.

Subject	ND-IC**	ND-DC**	DD-IC**	DD-DC**
S2	100%	0%	0%	0%
	(0/2)	(0/2)	(0/2)	(0/2)
S3	50%	50%	0%	50%
	(1/2)	(0/2)	(0/2)	(1/2)
S4	50%	0%	0%	0%
	(1/2)	(0/2)	(0/2)	(0/2)
S8	0%	0%	0%	0%
	(0/2)	(0/2)	(0/2)	(0/2)
S9	100%	50%	50%	0%
	(2/2)	(1/2)	(1/2)	(0/2)

Note: The data in parentheses are (tasks completed/total opportunities). ND=No deadline; ID=Immediate deadline; DD=Delayed deadline; NC=No consequence; IC=Immediate consequence; DC=Delayed consequence; **=the opportunity to respond was available 20 minutes after the statement was presented.

immediately available. Furthermore, the current study showed that when the availability or unavailability of such a consequence is clearly specified, the differential specification has immediate differential effects on most children's compliance; even on the first presentation of a CSS, before the first trip to the Goodie Box occurred, most children generally responded differentially to the CSS. Also, these results argue strongly for the value of the trip to the Goodie Box as a positive reinforcer for picking up the toys. The responding of three children (S5, S6, and S7) was less clearly delineated with respect to specification of consequences. S5 showed some bias toward responding to all CSSs (16/16 with consequences specified as available and 6/16 times when consequences were specified as unavailable.) S6 and S7 also showed less clear-cut differential responding in the two different consequence conditions than was typical of the remaining five children.

The present study includes conditions in which CSS specify deadlines and the unavailability of consequences. In such conditions, children picked up the toys fewer than 30% of the available opportunities. The fact that deadline specifications do result in close to 30% responding when the CSS specifies unavailability of consequences suggests the deadline does have some function, especially since the same children did not pick up toys when asked during screening. If, however, presentation of a CSS specifying a deadline generates a learned aversive condition from which a child escapes by complying, the condition has such an effect far more reliably when a positive consequence is also specified than when the CSS specifies that no positive consequence is available. It is possible that the deadline specification makes its contribution on the basis of a child's history of negative reinforcement associated with deadlines (accounting for about 30% responding) and the specification of positive consequences makes its contribution (the other 60+% of the total of 90+% responding) as a result of the child's history of reinforcement with positive reinforcement contingent on following rules in which positive consequences are specified.

The specification of a delayed deadline did not result in responding that differed from responses to CSS specifying immediate deadlines. The children responded in the same way to the two kinds of dead-

lines; in all conditions where the children could respond immediately, (conditions ID-IC*, ID-NC*, DD-IC*, and DD-NC*), they did so within seconds after the CSS was presented. Thus the opportunity to delay responding was not taken and the procedures in these conditions did not adequately separate the function-altering effects of CSSs from the evocative effects commonly assumed.

Part II of the study was conducted in order to better assess the function of the deadline when the possibility of its functioning evocatively were precluded. This was accomplished by delaying the opportunity to respond to the statement, precluding immediate compliance with the statement. In this part of the study, elements of the CSSs differed somewhat from those in the first part of the study. First specification of a *delayed consequence* was included among the elements of the CSS in two conditions and compared to specification of immediate reinforcer. Second, because the children had not responded differentially to immediate vs. delayed deadlines, only one of these elements was included in this part of the study. A no-deadline element was added for comparison to delayed deadline.

The only condition in which responding occurred when the opportunity to respond was delayed was that in which the statement specified no deadline, but specified immediate reinforcement for responding. In that condition ND-IC**, 60% task completion and 4 of 5 children responding may be interpreted as suggesting the children were capable of responding in accordance with a CSS that cannot function evocatively. Responding in the condition with the delayed opportunity, no deadline, and immediate reinforcer seems to suggest that the toys, not the statement, evoked the behavior. On those occasions when a child did the delayed task, the child picked up the toys immediately upon spotting the toys specified in the statement. The child did not wait until immediately before the deadline. In those instances where the child did pick up the toys, the toys seemed to evoke the behavior. Consistent with Schlinger and Blakely (1987), the CSS appeared to establish the toys as an S^D-like event; the rule itself was not present to evoke behavior. In general, children were less likely in Part II to respond when the CSS specified a deadline than when the CSS did not specify a deadline. This finding can be interpreted in several ways. Perhaps the deadline generated a learned aversive condition that dissipated during the delayed opportunity to respond. If this were the case, it would better explain the absence of responding when a deadline was presented than it would explain the presence of responding when no deadline was specified but an immediate consequence was. Especially difficult to explain is the 60% responding in the no deadline-immediate consequence condition vs. the delayed deadline-immediate consequence condition. The most consistently powerful element in the CSS (specification of immediate consequences) retained more of its function when the CSS also had no deadline at all as opposed to a delayed deadline.

In summary, results of the present study lead to the following conclusions. Contingency-specifying stimuli can have an effect on behavior temporally removed from presentation of the CSS. The children in this study, however, so responded only when the CSS specified no deadline and immediate availability of consequences previously determined to be reinforcing. Contingency-specifying stimuli had a more reliable effect on the children's behavior when the opportunity to respond was available when the CSS was presented. The CSSs that were effective were those specifying immediate availability of a consequence. Specification of immediate or delayed deadlines made no difference; the children responded almost immediately in all cases, which suggests that the CSS had evocative functions in addition to whatever other functions it may have had. The role of deadlines was somewhat ambiguous. In the immediate opportunity conditions, deadlines had an effect even when the CSSs specified no consequences. Whereas, the same children had not

responded to requests without deadlines or specification of consequences in the screening condition. This suggests deadlines were important elements. On the other hand, in the delayed opportunity conditions, children were more likely to respond when *no deadline* was specified than when a delayed deadline was specified. Thus, in the delayed opportunity condition the deadlines appeared to be irrelevant. Further research will be necessary to clarify the ways in which CSSs function in general, and the roles of various elements of CSSs in the control of rule-governed behavior.

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